

Listing of Claims:

1. (Currently Amended) A transmission state indicating method for a predetermined transmission system, by SONET (Synchronous Optical Network)/SDH (Synchronous Digital Hierarchy), in which high capacity data is divided into a plurality of low capacity virtual containers and transmitted via a plurality of channels which configure a communication network by the SONET/SDH based on clocks at the respective channels, the method comprising:

assembling a plurality of frames back into a multiplexed frame, wherein the plurality of frames are received in accordance with transmission states at the respective channels, and wherein the assembling is performed based on a reference clock with respect to virtual containers at the respective channels included in the plurality of frames including the plurality of low capacity virtual containers;

successively detecting factors at the respective channels which are respectively included in the plurality of frames contained in the multiplexed frame, and which are to be objects for delay absorption processings corresponding to the transmission states at the respective channels, as a plurality of pointer values indicating a variation in phase or transmission

delay during transmission at said plurality of channels which
configure the communication network by the SONET/SDH; and

indicating the plurality of pointer values successively
25 detected, at the same time, corresponding to the plurality of
channels by a graphic indication and a table indication, wherein
in the graphic indication, a first axis indicates the plurality
of channels which configure the communication network and a
second axis indicates the pointer values of the plurality of
30 channels contained in the frames, and wherein in the graphic
indication and the table indication, when a pointer value of a
given channel from the plurality of channels is judged to exceed
a predetermined range with respect to a reference value and a LOP
(Loss Of Pointer)/AIS (Alarm Indication Signal) has arisen, a
35 pointer value plot range of the given channel indicated in the
graphic indication is shaped into a strip and the pointer value
of the given channel displayed in the table indication is made
identifiable.

2. (Original) The transmission state indicating method
according to claim 1, further comprising:

storing said plurality of pointer values in association with
information for indicating said plurality of pointer values at
5 the same time in accordance with said plurality of channels; and

reading out the plurality of pointer values stored in association with the information for indicating the plurality of pointer values corresponding to the plurality of channels, at the same time.

3. (Original) The transmission state indicating method according to claim 1, further comprising:

carrying out processing for indicating said plurality of pointer values by relative values with respect to a pointer value of a reference channel to be a reference among said plurality of channels when said plurality of pointer values are indicated at the same time corresponding to the plurality of channels.

4. (Previously Presented) The transmission state indicating method according to claim 1, wherein the plurality of pointer values include values of AU (Administrative Unit) pointers included in H1 bytes and H2 bytes which have been defined to show head portions of the virtual containers in case where the low capacity containers are contained in a payload, at the 4th row of an SOH (Section Overhead) frame in which the plurality of frames are frames of an STM (Synchronous transfer mode) and which is added to the payload of the frame of the STM.

5. (Previously Presented) The transmission state indicating method according to claim 1, wherein the plurality of pointer values include a value of H4 byte which has been defined at the 6th row of a POH (Pass Overhead) added to head portions of the
5 respective virtual containers in case where said plurality of frames are frames of an STM (Synchronous transfer mode) and the virtual containers included in the frames of the STM are a VC-3 format or a VC-4 format.

6. (Previously Presented) The transmission state indicating method according to claim 1, wherein the plurality of pointer values include values of AU (Administrative Unit) pointers included in H1 bytes and H2 bytes which have been defined to show
5 head portions of the virtual containers in case where the low capacity containers are contained in a payload, at the 4th row of an SOH (Section Overhead) frame in which said plurality of frames are frames of an STM (Synchronous transfer mode) and which is added to the payload of the frame of the STM, and a value of H4
10 byte which has been defined at the 6th row of a POH (Pass Overhead) added to the head portions of the respective virtual containers in case where said plurality of frames are frames of the STM (Synchronous transfer mode) and the virtual containers included in the frames of the STM are a VC-3 format or a VC-4
15 format.

7. (Previously Presented) The transmission state indicating method according to claim 1, further comprising:

converting the multiplexed frame into a concatenation mapping frame according to rules of concatenation mapping; and

5 detecting a plurality of index values included in the concatenation mapping frame converted according to the rules of the concatenation mapping in place of the multiplexed frame.

8. (Currently Amended) A transmission state indicating apparatus for a predetermined transmission system by SONET (Synchronous Optical Network)/SDH (Synchronous Digital Hierarchy), in which high capacity data is divided into a plurality of low capacity virtual containers and transmitted via a plurality of channels which configure a communication network by the SONET/SDH based on clocks at the respective channels, the apparatus comprising:

10 a frame assembling unit which assembles a plurality of frames back into a multiplexed frame, wherein the plurality of frames are received in accordance with transmission states at the respective channels, and wherein the assembling by the frame assembling unit is performed based on a reference clock with respect to the virtual containers at the respective channels
15 included in the plurality of frames including said plurality of low capacity virtual containers;

a pointer value detecting unit which successively detects factors at the respective channels that are respectively included in the plurality of ~~channels~~ frames included in the multiplexed frame assembled by the frame assembling unit, and that are to be objects for delay absorption processings corresponding to the transmission states at the respective channels, as a plurality of pointer values indicating a variation in phase or transmission delay during transmission at the plurality of channels which configure the communication network by the SONET/SDH; and

a display unit which indicates the plurality of pointer values successively detected by the pointer value detecting unit, at the same time, corresponding to the plurality of channels by a graphic indication and a table indication,

wherein in the graphic indication, a first axis indicates the plurality of channels which configure the communication network, and a second axis indicates the pointer values of the plurality of channels contained in the frames, and wherein in the graphic indication and the table indication, when a pointer value of a given channel from the plurality of channels is judged to exceed a predetermined range with respect to a reference value, and a LOP (Loss Of Pointer)/AIS (Alarm Indication Signal) has arisen, a pointer value plot range of the given channel indicated in the graphic indication is shaped into a strip and the pointer

40 value of the given channel displayed in the table indication is
made identifiable.

9. (Previously Presented) The transmission state indicating apparatus according to claim 8, further comprising:

a storage unit which stores said plurality of pointer values successively detected by the pointer value detecting unit in
5 association with information for indicating the plurality of pointer values at the same time in accordance with the plurality of channels; and

a control unit which reads said plurality of pointer values stored in association with the information for indicating said
10 plurality of pointer values corresponding to the plurality of channels at the storage unit, at the same time.

10. (Previously Presented) The transmission state indicating apparatus according to claim 8, further comprising:

a control unit which carries out processing for indicating the plurality of pointer values successively detected by the
5 pointer value detecting unit, by relative values with respect to a pointer value of a reference channel to be a reference among the plurality of channels in the case where said plurality of pointer values are indicated at the same time corresponding to the said plurality of channels.

11. (Previously Presented) The transmission state
indicating apparatus according to claim 8, wherein the plurality
of pointer values include values of AU (Administrative Unit)
pointers included in H1 bytes and H2 bytes which have been
5 defined to show head portions of the virtual containers in case
where the low capacity containers are contained in a payload, at
the 4th row of an SOH (Section Overhead) frame in which the
plurality of frames are frames of an STM (Synchronous transfer
mode) and are added to payloads of the frames of the STM.

12. (Previously Presented) The transmission state
indicating apparatus according to claim 8, wherein the plurality
of pointer values include a value of H4 byte which has been
defined at the 6th row of a POH (Pass Overhead) added to head
5 portions of the respective virtual containers in case where the
plurality of frames are frames of an STM (Synchronous transfer
mode) and the virtual containers included in the frames of the
STM system are a VC-3 format or a VC-4 format.

13. (Previously Presented) The transmission state
indicating apparatus according to claim 8, wherein the plurality
of pointer values include values of AU (Administrative Unit)
pointers included in H1 bytes and H2 bytes which have been
5 defined to show head portions of the virtual containers in case

where the low capacity containers are contained in a payload, at the 4th row of an SOH (Section Overhead) frame in which said plurality of frames are frames of an STM (Synchronous transfer mode) and are added to the payload of the frame of the STM, and a value of H4 byte which has been defined at the 6th row of a POH (Pass Overhead) added to the head portions of the respective virtual containers when the plurality of frames are frames of the STM (Synchronous transfer mode) and the virtual containers included in the frames of the STM are a VC-3 format or a VC-4 format.

14. (Previously Presented) The transmission state indicating apparatus according to claim 8, further comprising:

a frame converting unit which converts the multiplexed frame assembled by the frame assembling unit into a concatenation

mapping frame according to rules of concatenation mapping; and

an index value detecting unit which detects a plurality of index values included in the concatenation mapping frame converted according to the rules of the concatenation mapping by the frame converting unit.

15. (Currently Amended) A transmission state indicating apparatus for a predetermined transmission system by SONET (synchronous Optical Network)/SDH (synchronous digital

Hierarchy), in which high capacity data is divided into a
5 plurality of low capacity virtual containers and transmitted via
a plurality of channels which configure a communication network
by the SONET/SDH based on clocks at the respective channels, the
apparatus comprising:

10 a plurality of clock reproducing units which reproduce the
clocks of the respective channels from reception signals of a
plurality of frames including the plurality of low capacity
virtual containers;

15 a plurality of frame receiving units which receive the
plurality of frames including the plurality of low capacity
virtual containers in which the high capacity data is divided
into the plurality of low capacity virtual containers and
transmitted via the plurality of channels which configure the
communication network by the SONET/SDH, corresponding to the
plurality of the respective channels, and detect the virtual
20 containers at the respective channels based on the clocks of the
respective channels reproduced by the plurality of clock
reproducing units;

a reference clock generating unit which generates a
reference clock;

25 a frame assembling unit which assembles the plurality of
frames back into a multiplexed frame in accordance with
transmission states of the respective channels and based on the

reference clock from the reference clock generating unit with
respect to the virtual containers at the respective channels
30 included in the plurality of the frames received corresponding to
the plurality of channels by the plurality of frame receiving
units;

a pointer value detecting unit which successively detects
factors at the respective channels that are respectively included
35 in the plurality of frames contained in the multiplexed frame
assembled by the frame assembling unit, and that are to be
objects for delay absorption processings corresponding to the
transmission states at the respective channels, as a plurality of
pointer values indicating a variation in phase or transmission
40 delay during transmission at the plurality of channels which
configure the communication network by the SONET/SDH, and which
successively detects the plurality of pointer values based on
variations in phases at the respective channels to be detected
from phase differences between the clocks at the respective
45 channels reproduced by the plurality of clock reproducing units
and the reference clock generated by the reference clock
generating unit;

an information storage unit which stores the plurality of
pointer values successively detected by the pointer value
50 detecting unit in association with information for indicating the

plurality of pointer values in accordance with the plurality of channels; and

a display unit which indicates, at the same time by a graphic indication and a table indication, the plurality of pointer values for respectively evaluating the transmission states of the plurality of channels which configure the communication network by the SONET/SDH, corresponding to the plurality of channels, based on the plurality of pointer values and the information for indicating the plurality of pointer values corresponding to the plurality of channels which have been stored in association with one another in the information storage unit,

wherein in the graphic indication, a first axis indicates the plurality of channels which configure the communication network, and a second axis indicates the pointer values of the plurality of channels contained in the frames, and wherein in the graphic indication and the table indication, when a pointer value of a given channel from the plurality of channels indicated is judged to exceed a predetermined range with respect to a LOP (Loss Of Pointer)/AIS (Alarm Indication Signal) has arisen, a pointer value plot range of the given channel indicated in the graphic indication is shaped into a strip and the pointer value of the given channel displayed in the table indication is made identifiable.

16. (Original) The transmission state indicating apparatus according to claim 15, further comprising:

a control unit which carries out processing for indicating the plurality of pointer values by relative values with respect to a pointer value of a reference channel to be a reference among the plurality of channels on the display unit.

17. (Previously Presented) The transmission state indicating apparatus according to claim 15, wherein the plurality of pointer values include values of AU (Administrative Unit) pointers included in H1 bytes and H2 bytes which have been defined to show head portions of the virtual containers in case where the low capacity containers are contained in a payload, at the 4th row of an SOH (Section Overhead) frame in which the plurality of frames are frames of an STM (Synchronous transfer mode) and are added to the payload of the frame of the STM.

18. (Previously Presented) The transmission state indicating apparatus according to claim 15, wherein the plurality of pointer values include a value of H4 byte which has been defined at the 6th row of a POH (Pass Overhead) added to head portions of the respective virtual containers in case where the plurality of frames are frames of an STM (Synchronous transfer

mode) and the virtual containers included in the frames of the STM are a VC-3 format or a VC-4 format.

19. (Previously Presented) The transmission state indicating apparatus according to claim 15, wherein the plurality of pointer values include values of AU (Administrative Unit) pointers included in H1 bytes and H2 bytes which have been
5 defined to show head portions of the virtual containers in case where the low capacity containers are contained in a payload, at the 4th row of an SOH (Section Overhead) frame in which the plurality of frames are frames of an STM (Synchronous transfer mode) and are added to the payload of the frame of the STM, and a
10 value of H4 byte which has been defined at the 6th row of a POH (Pass Overhead) added to the head portions of the respective virtual containers in case where said plurality of frames are frames of the STM (Synchronous transfer mode) and the virtual containers included in the frames of the STM are a VC-3 format or
15 a VC-4 format.

20. (Previously Presented) The transmission state indicating apparatus according to claim 15, further comprising:

a frame converting unit which converts the multiplexed frame assembled by the frame assembling unit into a concatenation
5 mapping frame according to rules of concatenation mapping; and

an index value detecting unit which detects a plurality of index values included in the concatenation mapping frame converted according to the rules of the concatenation mapping by the frame converting unit.